INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1936 No. 4

DISCOVERIES AND CURRENT EVENTS *

French West Africa: Plant Pests in Guinea †

(1) COFFEE.

Heterodera (Caconema) radicicola Greeff.
Bixadus (Monochammus) sierricola White.
Apate monachus F.
Xyleborus morstatti Haged.
Pseudococcus sp.
Lecanium viride Green.
L. coffeae Targ.
Gracilaria coffeifoliella Mutsch.
Toxoptera aurantii Boyer.
Stephanoderes hampei Ferr. = *St. coffeae* Haged.

(2) BANANA.

Tylenchus sp.
Pseudococcus sp.
Aspidiotus destructor Sign.
Icerya sp.
Catantops notatus.
Zonocerus variegatus L.
Locusta migratoria migratorioides R. and F.
Ceratitis capitata Wied.

(3) CITRUS TREES (ORANGE, MANDARIN AND LEMON).

Lepidosaphes citricola Pack.
Chionaspis citri Comst.
Parlatoria pergandei Comst.
Papilio demodocus Esp.
Ceratitis capitata Wied.

(4) KOLA.

Adoretus umbrosus F. = *A. hirtellus* Castn.
Balanogastris kolae (Desh.) Faust.

(5) PINEAPPLE.

L. migratoria migratorioides R. and F.
Pseudococcus brevipes Ckll.

(6) AVOCADO PEAR.

Aspidiotus destructor Sign.

(7) OIL PALM, COCONUT.

Oryctes boas F.
O. monoceros Oliv.
Archon centaurus F.
Platygenia barbata MacLean.
Rhynchophorus phoenicis F.
Aspidiotus destructor Sign.
Hemichionaspis marchali Ckll.

(8) MAIZE.

Aphis maydis Fitch.
Eldana saccharina Walk.
Sesamia vuteria Stoll.
Sitophilus (Calandra) oryzae L.

* Under this and the third heading the coutries are arranged in French alphabetical order.

† Communication from the official correspondent of the Institute, Mr. A. MALLAMAIRE, Colonial Agronomy Ingénieur, Director of the Phytopathological and Entomological Laboratory, Bingerville, Ivory Coast, French West Africa.

(9) Sorghum.

Aphis maydis Fitch.
A. sorghi Theob.
Sesamia vuteria Stoll.
Sitophilus (*Calandra*) *oryzae* L.

(10) Groundnut.

Aphis laburni Kalt. = *A. leguminosae* Theob.
Decatoma affinis Billb.
Pachymerus cassiae Gyll.

Eritrea: Locusts *

During the months of January and February, 1936, no locusts have been reported in the Colony.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) †

Below is given a summary of observations made during the month of November, 1935.

Province of Nyassa. No information on the movement of locusts.

Province of Zambezia. Slight locust movements reported with no fixed direction.

Territory of the Mozambique Company. A large swarm has been reported flying northwards towards the coast.

Province of Sul do Save. Greater locust movements have been reported than in the province of Zambezia, though less than in the same epoch last year. The swarm which passed over the city on the 8th flew towards Manhiça and Xinavane where it caused damage and then turned back across this zone where it broke up into small swarms which passed over the river zones.

In the regions on the borders of Zululand and Swaziland swarms are observed continuously crossing and re-crossing the frontier.

In conclusion, the infestation of red locusts (*Nomadacris septemfasciata*) is much less than last year when damage was caused.

In general, in the neighbouring territories the situation is better than in the same epoch last year though during this month a greater activity has been noticed and large swarms have appeared which have caused damage.

This is not surprising as during this month the swarms have been constantly moving about in search of places for laying. For this reason farmers and the

* Communication from the official correspondent of the Institute, Dr. Rolando Guidotti, Chief of the Agricultural Bureau of Eritrea, transmitted to the Institute by the Government of the Colony.

† Communication from Mr. Júlio Gardé Alfaro Cardoso, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the 'Repartição Técnica de Agricultura' of the Colony.

administrative authorities should control the movements of the swarms so as to localise the breeding grounds.

The egg collection should now begin and, by January, the control of hoppers.

Farmers should begin sowing in December with early varieties so as to harvest before the locusts develop into the adult stage.

* * *

During the month of December, 1935, no swarms have been reported in the north of the Colony, while in the centre and south a certain locust movement has been noted although less intense than in the same epoch of 1934.

The greatest number of swarms have been observed in the basin of the Zambesi river and the coastal region. The movements of these swarms are without any fixed direction, swarms have been observed flying first towards the north or towards the east or in some other direction. For this reason, in various localities, swarms have been seen flying in different directions which has given rise to the impression that they were different swarms.

In the province of Sul do Save the same thing has been observed though the number of the swarms is much less than in Zambesia. The number of localities where laying has been observed is much less than in the same epoch of 1934.

To sum up, it may be said that the locust invasion has greatly diminished, which is also in accordance with information received from neighbouring territories.

No disease has been noticed on the locusts, though storks have caused a great mortality among the locusts which are pursued by flights composed of hundreds of these birds.

* * *

During the month of January, 1936, information was still lacking on the existence of locusts in the north of the Colony.

In the districts of Quelimane and Tete, also in the zone of the Zambesi river, movements of swarms continued and hopper bands appeared which were destroyed.

In the south of the Colony, in the district of Inhambane, where large swarms collected during the cold weather, no reports have been received on the existence of locusts.

In the district of Lourenço Marques there is evidence of a certain locust movement during the month of January particularly in the circumscription of Maputo on the borders of Zululand. In the other circumscriptions laying has been observed and hopper bands have appeared.

In some regions eggs have been collected, particularly in the circumscriptions of Muchopes and Magude. A report has been received from this circumscription that locusts settled on the trees and consequently the eggs which they had laid fell to the ground.

In the circumscriptions of Chibuto and Muchopes the control of hoppers has been initiated.

Storks continue to decimate the bands.

The rainy weather has favoured the hatching, but also the destruction of many eggs.

To sum up, the general situation in respect of locust movements has greatly improved and it is foreseen that the new generation will be of much less importance than in the past year.

Southern Rhodesia: Locust Invasion, 1932-1936 *

Monthly Report No. 37. December, 1935.

The only species of locust recorded in the Colony during December has been the Red Locust (*Nomadacris septemfasciata*, Serv.). Swarms have been described mostly as 'large' and have been reported from various districts including the following:— Charter, Marandellas, Goromonzi, Mtoko, Hartley, Salisbury, Zaka, Bulawayo, Plumtree, Matobo, Mrewa, Bikita, Inyanga, Rusape, Insiza, Lomagundi and Mazoe.

The white bellied stork (*Abdimia abdimii*) has been much in evidence attacking the locusts, also the brown hawk (*Milvus aegyptius*).

There is no record of disease or parasites amongst the locusts to date.

No reports of egg laying have been received, but from specimens examined egg laying should commence about the second week in January, 1936.

Monthly Report No. 38. January, 1936.

A few large swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) are still active in the Colony, having been reported from the following districts, namely:— Salisbury, Mazoe, Charter, Marandellas, Lomagundi, Nyamandhlovu, Darwin, Bikita, Gwelo, Mtoko, Insiza, Hartley, Makoni, Inyanga, Belingwe, Gutu, Chibi, Gwanda, and Victoria.

Most swarms were described as 'large' and 'very large'.

Seven reports of egg-laying have been received, all from the Mazoe district, but on the 21st second stage hoppers were located and destroyed in the Mtoko district.

No disease has as yet been recorded amongst the specimens examined. Swarms in Inyanga district were reported to be infested with maggots. Birds were reported to be following one swarm in thousands in one district.

One instance of injury by a winged swarm to native owned crops was reported.

* Communication from the official correspondent of the Institute, Mr. Rupert W. Jack, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

VARIOUS QUESTIONS

International Conference for the Mutual Study of the Control of the Colorado Beetle *

The International Conference for the mutual study of the control of the Colorado beetle (*Leptinotarsa decemlineata*) met at Brussels on 22 and 23 January, 1936 made the following recommendations:—

(1) That the Governments interested should come to an agreement for the organisation of the mutual control of the Colorado beetle: —

(*a*) By immediately communicating all important observations relative to the movements of the Colorado beetle (appearance of new breeding places, extension of the regions infested by the insect, date of first appearance in spring, periods of flight, commencement of hibernation, etc.).

(*b*) By unifying the practical measures for control (organisation of the supervision of crops, organisation of services entrusted with destroying breeding places and the regular control of infested areas).

(*c*) By experimental study for the improvement of methods of control already known and the examination of new measures (apparatus, insecticides, etc.).

(2) That they agree on a programme of action with a view to effecting all supplementary research that may of value, on the Colorado beetle, chiefly from the standpoint of:—

(*a*) The general ecology of the Colorado beetle, the number of generations and the duration of the life cycle in relation to different climatic and soil conditions, conditions of natural diffusion.

(*b*) The study of prophylactic measures (immune varieties, plant-traps, natural enemies, influence of methods of cultivation).

(3) That a Permanent International Committee of specialists should the established under the aegis of the International Institute of Agriculture with a view to centralising the documentation and to co-ordinating efforts made to assure the efficacy of the measures taken, notably by drawing up schemes of work and the publication of results obtained.

A provisory Committee, the Secretariat being established at Brussels, is charged with the preparation of a scheme of action. It is composed of Messrs. Schwartz, van Poeteren, Ferrant, Mayné, Feytaud and Wahlen.

* Communication from the Ministry of Foreign Affairs and Foreign Commerce of Belgium to the International Institute of Agriculture.

The following countries took part in this Conference: Germany, Belgium, France, Great Britain Italy, Luxembourg, Morocco (French Zone), the Netherlands, Polands, Sweden, Switzerland and Czechoslovakia.

Recommendations for Technical Workers.

In the present conditions (spring, 1936) the Conference recommends the following operations when an invasion by the Colorado beetle is threatened.

(*A*) Field Survey.

In a region infested or suspected of infestation field investigation should be intensified from the time when the soil temperature reaches 10° C., the optimum temperature for the emerging of adults being 14-15° C. It should be extended to the crops of tomatoes, egg plants and wild plants liable to be attacked. As soon as the fine days begin investigation should be made of all the fields in the locality, particularly where the foliage is most developed.

Field investigation becomes even more necessary when the atmospheric temperature rises to 20°C. or more during several days.

It is chiefly indicated in the direction of the prevailing winds during the hottest hours of the day (10 A. M. to 3 P. M.).

(*B*) Discovery of the Insect.

(1) Immediate collection and destruction on the spot.

(2) Demarcation of the breeding place.

(3) Removal of the haulm which should be collected in the centre of the breeding place.

(4) Breaking up the soil and careful search for insects by sieving the soil.

(5) Saturation of the soil with benzol or petrol.

(6) Distribution of the haulm in the spot occupied by the breeding place.

(7) Repeated treatment of the soil and the haulm with the same products.

Operations (3) to (7) may be replaced by the following:—

(3) Burial of the haulm on the spot at a minimum depth of 60 cm. and watering with one of the above mentioned products.

(4) Sieving as above.

(5) Saturation of the soil as above.

(8) Immediate treatment of the foliage with an insecticide indicated by the technical Service (such as acid lead arsenate or calcium arsenate) on all fields of potatoes in a radius of at least 500 metres.

Treatment to be repeated, 2 to 4 weeks later and a final third treatmemt if necessary.

(9) Supervision and field survey will be carefully continued after the treatment.

It is recommended to retain the green foliage as late as possible into the autumn and to replant potatoes as early as possible in the spring, on the spot, in order to serve as plant-traps.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

French West Africa (Ivory Coast). — By Decree of 1 May, 1935, all growers of shrubs such as coffee, cacao, kola, palms, banana, etc., are obliged, at least twice a year, to see that their plantations are thoroughly cleaned, by hoeing, lopping, and destruction of animal and plant parasites.

The destruction of *Zonocerus variegatus*, *Sahlbergella singularis* and *Helopeltis theobromae* is rendered obligatory in all plantations either by collecting the insects or by spraying with insecticides.

To all workshops for treating coffee berries should be attached a scalding vat in which the berries from lots infested with *Stephanoderes hampei* should be immersed for at least 5 minutes in boiling water. This method, if desired, may be replaced by disinfection by means of efficacious insecticides (chloropicrin, carbon disulfide, etc.).

In cacao plantation, the débris from cacao pods, entirely or partially attacked by rot, should be removed outside the plots planted along the roads or near the fermentation workshop and compulsorily burnt.

These provisions apply to all plantations whether registered or not. (Ministère des Colonies. Institut National d'Agronomie de la France d'Outre-Mer. *L'Agronomie Coloniale*, Paris, février 1936, 25e année, nº 218, p. 55-56).

Algeria. — By Decree of the President of the French Republic, dated 22 December, 1925, confirmation is given to a decision of the Plenary Assembly of Financial Delegations of Algeria, dated 22 June, 1935, concerning the establishment, as from 1 January, 1936, of a tax for the disinfection, with hydrocyanic acid and ethylene oxide, of plants, various products and food products in the apparatus of the Service for Crop Protection and Phytopathological Inspection of Algeria. (*Journal Officiel de l'Algérie*, Alger, 24 janvier 1936, 10e année, n. 4, p. 84).

Germany. — By two Decrees of 23 and 24 December, 1935, new regulations for the application of the Law relative to the control of grape phylloxera [*Phylloxera vastatrix*] in the vine-growing and non-vine-growing regions, have been brought into force.

The new regulations correspond in general to the Ministerial dispositions of 27 September and 2 November, 1933 [see this *Bulletin*, 1934, No. 1, pp. 12-13, and No. 2, pp. 36-37].

For the vine-growing regions, dispositions of a general nature are given, *viz.*, regular control by regional experts, declarations of all new plantings of vines, definition of what is known by the terms infested ('verseucht'), suspected to be infested (' seuchenverdächtig ') and exposed to the danger of infestation (' seuchengefährdet '), annual publication of a list of localities recognised to be infested, suspected to be infested or exposed to the danger of infestation, etc.

Dispositions follow of a preventative nature, *viz.*, compulsory declaration of all new infestations, control of non-European vines from the view point of the presence of phylloxera galls on the leaves, prohibition to plant non-European vines and their hybrids without special authorisation, etc.

Dispositions are finally given concerning the measures for control to be taken in the centres of infestation and in the communes recognised to be infested, also dispositions concernig the re-establishment of vine-yards, the transport and trade of vines and parts of vines.

With regard to the non-vine-growing regions, the Decree of 24 December, 1935, contains less strict dispositions, however, it is made compulsory to declare the planting of vines for commercial purposes. The planting of non-European vines and their hybrids, without special authorisation, is forbidden. The planting of vines belonging to commercial enterprises is subject to regular supervision. All occupiers of land planted with vines, where the presence of grape phylloxera has been determined or suspected, are obliged to make a declaration immediately to that effect.

The last dispositions of the above Decree refere to the trade in vines. Itinerant trading is prohibited. (*Reichsgesetzblatt*, Teil I, Berlin, 30. Dezember 1935, Nr. 148, S. 1543-1550).

Germany (Lübeck). — By Decree of the President of the Senate, dated 17 December, 1935, concerning the control of the beetle *Hylotrupes bajulus*, a kind of public and compulsory insurance is instituted against damage caused by this insect on the model of the measures already adopted by the State and Free City of Hamburg [see this *Bulletin*, 1935, No. 4, p. 86]. The annual premium to be paid by house owners should not exceed 0.3 ‰ of the value fixed for insurance against fire. It has been fixed at 0.05 ‰ of that value for the first quarter of 1936. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1936, Bd. VIII, Nr. 1, S. 18-19).

Germany (Thuringia). — By Police Ordinance of 21 December, 1935 the cleaning of fruit trees and the control of their diseases and pests has been made compulsory. The following work should be carried out each year before 1 April: old trees, dead or dying trees or trees, which are so badly attacked as to render useless any treatment, to be cut down; mosses, lichenes and dead bark to be removed from the trunk and branches of apple, pear and plum trees; caterpillar clusters and mumified fruits to be destroyed. Parts of apple trees attacked by woolly aphis [*Eriosoma lanigerum*] should be carefully cleaned. The insects should be destroyed. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1936, Bd. VIII, Nr. 1, S. 22-23).

Australia (Commonwealth of). — By Quarantine Proclamation No. 1P of 11 September, 1935 all plants imported in Australia from any place beyond Australia shall be subject to quarantine. (*Commonwealth of Australia Gazette*, Canberra, 19th September, 1935, No. 49, p. 1333).

*** By Quarantine Proclamation No. 2P of 11 September, 1935 have been revoked the Proclamations set forth in the First and Second Schedules to this Proclamation by which certain diseases, weed pests and insect pests were declared pests or diseases affecting plants and the introduction of such pests and diseases into Australia was prohibited also the introduction of certain plants into Australia was prohibited either absolutely or subject to certain limitations and conditions or restrictions. (*Ibid.*, p. 1334).

*** By Quarantine Proclamation No. 3P of 11 September, 1935, the Governor-General has revoked the Proclamations set forth in the First Schedule to this Proclamation to the extent specified in that Schedule, has declared the ports set forth in the Second Schedule to this Proclamation to be ports where imported plants may be landed and has appointed the places set forth in the Third Schedule to this Proclamation to be quarantine stations for the performance of quarantine by plants or goods. (*Ibid.*, 26th September, 1935, No. 51, pp. 1380-1381).

Australia (**South Australia**). — By Regulation of 17 October, 1935 *Citrullus colocynthis* (Colocynth) is declared to be a noxious weed throughout the whole of the State. (*The South Australian Government Gazette*, Adelaide, October 17, 1935, No. 43, p. 791).

Australia (**Queensland**). — On 5 December, 1935 the Governor has approved 'The Rat Prevention and Destruction Regulations of 1935' made by the Director-General of Health and Medical Services on 30 November, 1935, prescribing the measures to be taken by the owners and occupiers, also by the Local Authority for the prevention and control of breeding and harbouring of rats, mice, and bandicoots. (*Queensland Government Gazette*, Brisbane, 5th December, 1935, Vol. CXLV, No. 145, pp. 1679-1681).

Denmark. — The Ministerial Notification No. 295 of 6 November, 1935, contains measures for the control of the eelworm disease of potatoes [*Heterodera schachtii*]. (*Lovtidenden A.*, København, 12. Nov. 1935, Nr. 38, sid. 1173-1174).

France. — A notice to importers of seed potatoes originating in and coming from Great Britain, published on 28 January, 1936, informs the said importers that they are authorised to present a single certificate of origin and of sanitary inspection, in conformity with the form attached to the above mentioned notice. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1er février 1936, année 1936, nº 3, p. 60).

*** A notice to exporters of living plants and parts of living plants to Denmark, published on 31 January, 1936, indicates the restrictions to which is sub-

jected the importation of these plant products into Denmark. Attached is the form of the phytosanitary certificate which should accompany the merchandise. (*Ibid.*, p. 61).

Italy. — By Ministerial Decree of 3 February, 1936, the commune of Acquaviva Picena in the province of Ascoli Piceno has been declared infested with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 14 febbraio 1936, anno 77°, n. 37, p. 431).

*** The Ministry of Foreign Affairs has informed the International Institute of Agriculture that the request has been granted for the registering at the Secretariat of the League of Nations, of the International Convention relative to the organisation of locust control, signed at Rome on 31 October, 1920, under the auspices of the Institute. In fact this Convention was registered at Geneva on 19 December, 1935 under the No. 3790.

Attention is drawn to the fact that the International Convention for plant protection, signed at Rome on 16 April, 1929, following the International Diplomatic Conference, organised by the Institute [see this *Bulletin*, 1929, No. 4, pp. 50-55], was registered at the Secretariat of the League of Nations on 8 February, 1933, under the No. 28831.

*** The Executive Committee of the 'Ente Nazionale per la Cellulosa e per la Carta' has decided to open a competition with a single prize of 20 000 lire to be awarded to the competitor who discovers really suitable and efficacious methods for the control of the most serious diseases of the poplar.

Morocco (French Zone). — By Decree of the Director of Waters and Forests, dated 23 December, 1935, it is authorised to destroy rabbits causing great damage in certain zones of the circle of Ouezzane. (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 3 janvier 1936, XXV[e] année, n° 1210, p. 6-7).

Uruguay. — By Resolution No. 1214/935 of 20 November, 1935, the sale within the country of ground sulphurs intended for use in agriculture and stock-breeding may only take place in closed cases, completely sealed. A stamped or stuck-on label should be attached to each specifying the quality, use, derivation, net weight of the contents and date of production or importation of the suphur.

Sulphur intended for use against cryptogamic diseases of the grape vine and fruit trees should conform to the following requirements:—

Impurities: not more than 0.5 %.
Humidity: not more than 0.5 %.
Purity: not less than 60 degrees Chancel.

Powdered sulphurs with other characteristics than those mentioned above cannot be sold without express authorisation by the Ministry of Industry and Labour which will indicate the necessary formalities.

The Institute of Chemical Industry supervises and controls the sale of sulphur in powder form within the country. This control will be exercised immediately in the places of production and within three months in the places of production and sale.

The above Institute is authorised to import powdered sulphur free of customs duties.

The same Institute will fix the sale prices of powdered sulphur within the country, and will regulate the application of the present Resolution, indicating the modifications and amplifications that may prove to be necessary. (*Diario Oficial de la República Oriental del Uruguay*, Montevideo, 10 de diciembre de 1935, tomo 121, núm. 8792, pág. 410-A).

*** By Law No. 1240/935 of 33 November, 1935, the Executive Power is authorised to expend up to the sum of 50 000 ' pesos ' for the purchase of the necessary seeds for the purpose of providing the farmers whose sown crops have been destroyed by the South American locust [*Schistocerca paranensis*] with fresh seed, to be returned after the harvest.

The ' Banco Hipotecario ' of Uruguay, in cases of total loss or almost total loss of the crop from new locust invasions, when the losses are not due to negligence on the part of the farmer, will rembourse 50 % of the value of the seeds supplied.

The benefits to be derived from this Law are confined solely to farmers who cannot make use of the ' Credito Habilitador ', accorder by the Bank of the Republic. (*Ibid.*, 30 de noviembre de 1935, núm. 8784, pág. 362-A).

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[This Note is followed (p. 343) by 'Remarques au sujet de la Communication précédente de M. J. Bouget', by M. Julien Constantin. — *Typhlocyba* sp. on the potato].

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NOTES

VIIth International Botanical Congress. — This Congress will take place at Copenhagen in 1940.

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